This instruction covers new installation of the 33/3549A concealed vertical device for aluminum and hollow metal doors.

Also covered is the CS 33/3549A retrofit cabling system for converting 33/3547A Series to 33/3549A Series (compatible with models 33/3547A, 33/3547A-F, 33/3547A-LBR, and 33/3547A-F-LBR).

See page 14 for an explanation of Warnings and Cautions used in this booklet.

AL = for Aluminum Door applications
HM = for Hollow Metal Door applications
RF = for Hollow Metal Door Retrofit applications

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**CABLE IDENTIFICATION**

1. Identify Cables and Locations.

<table>
<thead>
<tr>
<th>CABLE IDENTIFICATION</th>
<th>HOLLOW METAL AND ALUMINUM DOORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Door Opening Height</td>
<td><strong>A</strong> Top Cable (Red)</td>
</tr>
<tr>
<td>6' 0&quot; - 6' 10&quot;</td>
<td>47250398</td>
</tr>
<tr>
<td>6' 10&quot; - 8' 0&quot;</td>
<td>47250175</td>
</tr>
<tr>
<td>8' 0&quot; - 9' 2&quot;</td>
<td>47250176</td>
</tr>
<tr>
<td>9' 2&quot; - 10' 4&quot;</td>
<td>47250177</td>
</tr>
<tr>
<td>10' 4&quot; - 11' 6&quot;</td>
<td>47250399</td>
</tr>
<tr>
<td>11' 6&quot; - 12' 8&quot;</td>
<td>47250400</td>
</tr>
<tr>
<td>12' 8&quot; - 13' 10&quot;</td>
<td>47250401</td>
</tr>
<tr>
<td>13' 10&quot; - 15' 0&quot;</td>
<td>47250402</td>
</tr>
</tbody>
</table>

* Based on standard centerline of 39\(\frac{5}{8}\)" from finished floor

Note: For retrofit installations, begin at Step 19.

**CABLE COMPONENTS**

- Cable Snap
- Casing Cap
- Conduit Lock Nut
- Conduit Lock
- Conduit Bolt
- Large Diameter Conduit
- Sizing Spacer
- End Fitting Nut
- End Fitting
- Core Wire

**CABLE SIZING PREPARATION**

2. Align Sizing Tape to Horizontal Device Center Line as shown. For Bottom Cable Sizing (if applicable), Align Sizing Tape to Bottom Edge of Door.

Use cable components diagram above for reference.

For 2-Point Latch Only

Bottom Cable sizing

RHR Shown

Top of door

Sizing Spacer
**CABLE SIZING**

3 To Size Top Cable, Align Sizing Spacer Hook to Top Edge of Door.

4 Loosen Conduit Lock Nut ½ Turn. At Opposite End of Cable, Pull Casing Cap to Line on Tape.

5 Hand Tighten Conduit Lock Nut.

6 Wrench Tighten Conduit Lock Nut ¼ Turn.

7 Remove Warning Label. While Pulling Core Wire Tight, Hand Tighten End Fitting Nut.

8 Remove Sizing Spacer. (Do not discard.)

9 While Holding End Fitting in Place with Pliers, Fully Tighten End Fitting Nut with Wrench.

**WARNING**

Failure to properly tighten end fitting nut will result in device malfunction and possible lock in or lock out situation.

Once tightened down, end fitting nut can’t be loosened or readjusted.

10 Cut Core Wire Flush with End Fitting.

11 Snap Sizing Spacer onto Large Diameter Conduit for Storage.

12 To Size Bottom Cable, Align Sizing Spacer Hook to Top Edge of Door as before, and Repeat Steps 3 thru 10.

For 2-Point Latch Only

Repeat Steps 3 thru 10
CABLE INSTALLATION

13 Flip Top Cable.

Caution: After sizing, TOP cable must be flipped 180° before installing. See tag.

14 Install Top Cable.

a. There is an end fitting on one end of the red cable. Position this end to clip on center slide.

b. Pull cable into clip to snap it into place.

c. Push cable snap against center slide to secure cable.

d. Follow steps (a) thru (c) to install opposite end of red cable to top latch in the position marked red.

Cable Removal

(If the cable was installed in wrong position)

A cable removal tool was included with device. Slot in tool fits over cable, holding tabs down. Pull on cable snap to loosen cable for removal.

15 Install Bottom Cable.

For 2-Point Latch Only

a. There is an end fitting on one end of the white cable. Install this end to the remaining top latch position (marked as white).

b. Install opposite end of white cable to bottom latch.

Caution: Ensure cable end is fully seated in clip.
16 Determine if Bottom Latch Retraction Adjustment is Necessary. 
For 2-Point Latch Only

**CAUTION**
Critical step

Adjustment must be made while the top latch is in the hold-open position.

a. Flex the cable into an L-shape as shown to simulate the installed condition of the latches.

b. To determine whether an adjustment is required, actuate the top latch to the hold-open position by pressing down on the connecting rod. Bottom latch should retract to within \( \frac{1}{16} " \) of flush. If it does not, an adjustment is necessary.

If no adjustment is needed, proceed to Step 18.

17 Adjust Bottom Latch Retraction (if necessary). 
For 2-Point Latch Only

**CAUTION**
Adjustment must be made while the top latch is in the hold-open position.

a. Use a permanent marker or tape to mark position of bottom cable conduit.

b. Loosen conduit lock nut so conduit is free to slide.

c. Pull until (1) extra wrap of conduit can be seen (1 wrap = \( \frac{1}{8} " \)).

d. Hand tighten conduit lock nut.

e. Repeat Step 16. Confirm bottom latch now retracts to within \( \frac{1}{16} " \) of flush.

f. If not, loosen conduit lock nut, pull out an additional wrap of conduit, and hand tighten conduit lock nut.

g. Wrench tighten conduit lock nut 1/4 turn.

Caution: Do not overtighten.

**WARNING**
Failure to properly tighten conduit lock nut will result in device malfunction and possible lock in or lock out situation.

18 Confirm Bottom Deadlatching. 
For 2-Point Latch Only

a. Lock top latch. Flex the cable into an L-shape as before.

b. Push against flat side of bottom latchbolt. Latchbolt should NOT release.

If latchbolt releases, return conduit to position marked in Step 17a. Repeat bottom latch retraction adjustment.

**CAUTION**
If no bottom latch retraction adjustment was necessary, yet the bottom latch won’t deadlatch, contact technical support.
19 If Retrofit Installation
   a. Remove device from existing door.
   b. Remove and discard existing door.
   c. Remove and discard existing strikes.

20 With Door Laying Flat, Draw Horizontal and Vertical Device Center Lines (ε).

NOTE: Centerlines are predetermined by cutout. If no cutout exists, refer to templates at the back of this instruction to determine centerlines.

21 Align Paper Template to Mark and Prepare Door, if Required.

See pages 15 and 16 for paper templates.

RHR shown (LHR opposite)

22 Assemble Latch Mounting Brackets.

   Hollow Metal Only

   Top

   3/4”  1/4”

   Depth from top edge of door to the channel

   RHR shown (LHR opposite)

   10-32 x 1/4”

   3/4” mounting shown

   10-32 x 1/4”

   For 2-Point Latch Only

23 Prepare Access Hole for Bottom Latch Adjustment Pin.

   Hollow Metal For 2-Point Latch Only

   Bottom of Door

   Door Edge RHR

   Door Edge LHR

   4 1/4” depth clearance required

   3/8” from push side of door

   3 3/8”

   3/8” from push side of door

   3/8” Dia. hole
If Necessary, Prepare Door for Top Strike Cutout.

- Cut out material this side only
- Push side of door, RHR shown

Prepare Top of Door for Latch Mounting.

- **Aluminum Only**
- **Latch**
- 7/64" Dia. x2
- 82° Csk to 3/8" Dia.
- 3 3/8" 1 1/8"
- Push Side of Door

Prepare Bottom of Door for Latch Mounting.

- **Aluminum For 2-Point Latch Only**
- **Latch**
- 7/64" Dia. x2
- 82° Csk to 3/8" Dia.
- 2 1/4" 1 1/8"
- Push Side of Door

Remove Screw from Center Slide.

- This screw will be used to secure center slide to door in Step 30.

Slide Latch and Center Slide Assembly thru Door.

- **NOTE:** Confirm top latch (and bottom latch, if applicable) is in correct orientation before proceeding.

1-Point Latch (LBL)

- Holes should face push side (notch side) of door

2-Point Latch

- Holes should face push side (notch side) of door

NOTE: It is normal for the cable to bend inside the door, forcing the latch outward.
Secure Center Slide to Door.

Align upper hole visually.

Insert small screwdriver into upper hole to prevent center slide from rotating.

Fully tighten lower screw.

Align Bottom Latch and Install Mounting Screws.

Insert small screwdriver into upper hole to prevent center slide from rotating.

Secure Top Latch with 2 Screws.

Install Bottom Latch Mounting Bracket Assembly.

NOTE: Confirm correct orientation of assembly before proceeding. Open side of housing should face pull side of door.

NOTE: Use 2 screws per bracket (center hole not used for this application).
34 Insert Latch Adjustment Pin to Hold Bottom Latch in Place.  
Hollow Metal For 2-Point Latch Only

If Necessary, Cut Device.

Door

Jamb

Jamb

1 1/2" (38 mm) Recommended

Temporarily Remove Anti-Rattle Clip

Cover Plate Flush

35 Secure Top Latch Mounting Bracket.  
Hollow Metal Only

NOTE: It is normal for the cable to bend inside the door, forcing the latch outward as shown here.

NOTE: Use 2 screws per bracket (center hole not used for this application).

36 Hang Door on Frame.

Caution: For 2-point latches, bottom latch cannot be in locked position while hanging door on frame. Latch must be retracted.

37

Attach Center Case to Door.

Block may need to be pushed down to insert screw

NOTE: If using 360/386/388 trim, this screw will pass thru top center slide hole and secure directly into trim.

Thru-bolting Trim

Sex Bolt

OR

(1 3/4" door) 1/4-20 x 1" (Bottom hole only)

(1 3/4" door) 1/4-20 x 1 1/2"

(2 1/4" door) 1/4-20 x 1 1/2"
39 Mark and Prepare 2 Holes.

40 Install End Cap Bracket and End Cap.

41 If New Installation, Prepare Door Frame for Top Strike.

42 If Retrofit Installation, Install Steel Cover Plate to Cover Existing 338 Strike Opening in Accordance with the Frame Manufacturer’s Fire Listing.

43 Install 2 Top Strike Screws Using the Slot Features on the Strike.

44 Prepare Floor for Bottom Strike. Hollow Metal For 2-Point Latch Only
**Install Bottom Strike.**

**Hollow Metal For 2-Point Latch Only**

Clear holes of debris, then drop in anchors (slotted end first).

Secure the anchors using a hammer and punch.

**IMPORTANT:** Anchors must be below flush.

Install strike plate and secure with 2 screws.

---

**Prepare Threshold.**

**Aluminum For 2-Point Latch Only**

a. After closing door with bottom latch installed, mark location where bottom latch bolt is contacting the threshold.

b. Drill a ¾" diameter hole in the threshold.

---

**Install Lift Finger and Retainer Clip.**

NOTE: Lift finger installation must be performed while the latches are in the extended (latched) position.

Slide L-shaped lift finger thru block in device center case and then into center slide.

**For 2-Point Latch Only**

Push cable to the side so it does not interfere with lift finger.

Install retainer clip against lift finger, snapping it into the slot of the adjustment screw.

It may be necessary to back out adjustment screw a couple turns to see slot.

Secure lift finger and retainer clip with screw.

---

**Adjust Lift Finger.**

NOTE: Lift finger adjustment must be performed while the latches are in the extended (latched) position.

Loosen retainer clip screw.

While maintaining downward pressure, turn adjustment screw counterclockwise to lower lift finger to point where top latch unlocks with push pad depressed halfway.

Tighten retainer clip screw.
**49 Confirm Top Deadlatching.**

a. Lock top latch.

b. Push down on top latchbolt. Latchbolt should NOT release.

If latchbolt releases, loosen retainer clip screw, then rotate adjustment screw clockwise a couple turns to raise lift finger. Retighten retainer clip screw.

**50 Perform Functional Test of Door.**

a. Depress pushbar. Door should begin to open when pushbar is nearly fully depressed. If necessary, refer to Step 48 to readjust lift finger.

b. With door closed, top latch should be secure.

c. **For 2-Point Latch Only**
   
   c. With door closed, bottom latch should be secure.

   d. Confirm that bottom latch does not drag against floor when door is opened.

   **Hollow Metal For 2-Point Latch Only**

   If this occurs, remove latch adjustment pin and raise latch, then reinsert pin in next notch.

   - Pin must go thru both sides of bracket

   - To remove pin, slide a screwdriver beneath the latch adjustment pin cap

   - Squeeze tabs on cap before reinserting pin

   - 8-18 x ¾"

**51 Adjust Top Strike as Necessary, then Install the Third Strike Screw to Fix the Strike Position.**

- **Metal**
  - #25 x ½” Deep
  - #10-24

- **Wood**
  - ¼” Drill
  - Pilot 1” Deep

**52 Install Center Case Cover.**

- Remove protective film from pushbar
1. Remove mortise cylinder cam and reinstall in reverse (Figure 1).
2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 2).
3. Remove key to slide cover plate in position in the mechanism case.

**CD function conversion**

Figure 1

**Dogging procedure**

Turn cylinder key approximately \( \frac{1}{8} \) turn for standard dogging

Depress pushbar

Figure 2
WARNINGS AND CAUTIONS

WARNING

Warnings indicate potentially hazardous conditions, which if not avoided or corrected, may cause death or serious injury.

CAUTION

Cautions indicate potentially hazardous conditions, which if not avoided or corrected, may cause minor or moderate injury. Cautions may also warn against unsafe practices.

Caution: Cautions indicate a condition that may cause equipment or property damage only.
ALUMINUM AND HOLLOW METAL DOORS - LHR

**Device C**

- B = backset
- A = stile width

### 33/3549A Device Template

#### 33/3549A

<table>
<thead>
<tr>
<th>Installation</th>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>pair of doors</td>
<td>2 ³⁄₄&quot; to 2 ⁷⁄₈&quot;</td>
<td>1 ³⁄₄&quot;</td>
</tr>
<tr>
<td></td>
<td>2 ⁷⁄₈&quot; to 3 ³⁄₄&quot;</td>
<td>1 ³⁄₈&quot;</td>
</tr>
<tr>
<td></td>
<td>2 ⁷⁄₈&quot; to 3 ⁷⁄₈&quot;</td>
<td>1 ⁷⁄₈&quot;</td>
</tr>
<tr>
<td></td>
<td>2 ⁷⁄₈&quot; to 5&quot;</td>
<td>1 ⁷⁄₈&quot;</td>
</tr>
<tr>
<td></td>
<td>2 ⁷⁄₈&quot; to flush 2 ⁷⁄₈&quot;</td>
<td>1 ⁷⁄₈&quot;</td>
</tr>
<tr>
<td>single door</td>
<td>2 ⁷⁄₈&quot; to 3 ³⁄₄&quot;</td>
<td>1 ³⁄₈&quot;</td>
</tr>
<tr>
<td></td>
<td>3 ³⁄₄&quot; to 5&quot;</td>
<td>1 ⁷⁄₈&quot;</td>
</tr>
<tr>
<td></td>
<td>3 ³⁄₄&quot; to flush 2 ⁷⁄₈&quot;</td>
<td>1 ⁷⁄₈&quot;</td>
</tr>
</tbody>
</table>

**NOTE:** Consult aluminum door manufacturer to confirm backset compatibility.

### 33/3549A-F

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ³⁄₄&quot; Min.</td>
<td>2 ³⁄₄&quot;</td>
</tr>
</tbody>
</table>

- Use of outside trim may alter minimum stile requirement. See trim template.

#### Aluminum Door

- ⅛" Dia. (Device Side only)
- 82° Csk to ⅛" Dia.

#### Hollow Metal Door

- ⅛" Dia. (Device Side only)
- 82° Csk to 3/₈" Dia.

---

### Sex Bolt (for bottom hole only)

- ⁵⁄₈" (device side)
- ⅛" (trim side)

### Thru-Bolting Trim

- ⁵⁄₈" (device side)
- ⅛" (trim side)

**X** Device Side only

**D** Device Side only

- ¹⁄₄" Radius (4 places)

---

**C** Device Side only

- ¹⁄₄" (device side)
- ⅛" (trim side)

**D** (Screw will tighten directly into center slide)

**X** ¹⁄₄" Radius (8 places)

---

**C** Device Side only

- ¹⁄₄" (device side)
- ½" (trim side)

**D** (Screw will tighten directly into center slide)